

AMENDMENTS TO THE SPECIFICATION

Applicant amends the first paragraph of the section entitled "DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT" (paragraph [0047] as published) as indicated below.

[0047] FIG. 1A illustrates the mode-locked laser cavity 11 of this invention which uses a length of multi-mode amplifying fiber 13 within the cavity to produce ultra-short, high-power optical pulses. As used herein, "ultra-short" means a pulse width below 100 ps. The fiber 13, in the example shown, is a 1.0 m length of non-birefringent $\text{Yb}^{3+}/\text{Er}^{3+}$ -doped multi-mode fiber. Typically, a fiber is considered multi-mode when the V-value exceeds 2.41, i.e., when modes in addition to the fundamental mode can propagate in the optical fiber. In particular, V-values higher than 2.5 and relatively high index differences between core and cladding (i.e. a $\Delta n > 0.3\%$) can be effectively employed. Further, the number of modes is preferably in the range of 3 to 3000 and more preferably in the range of 3 to 1000. This fiber is coiled onto a drum with a diameter of 5 cm, though bend diameters as small as 1.5 cm, or even smaller, may be used without inhibiting mode-locking. Due to the Er^{3+} doping, the fiber core in this example has an absorption of approximately 40 dB/m at a wavelength of 1.53 μm . The Yb^{3+} co-doping produces an average absorption of 4.3 dB/m inside the cladding at a wavelength of 980 nm. The fiber 13 has a numerical aperture of 0.20 and a core diameter of 16 μm . The outside diameter of the cladding of the fiber 13 is 200 μm . The fiber 13 is coated with a low-index polymer producing a numerical aperture of 0.40 for the cladding. A 10 cm length of single-mode Corning Leaf fiber 15 is thermally tapered to produce a core diameter of approximately 14 μm to ensure an optimum operation as a mode filter, and this length is fusion spliced onto a first end 17 of the multi-mode fiber 13.